

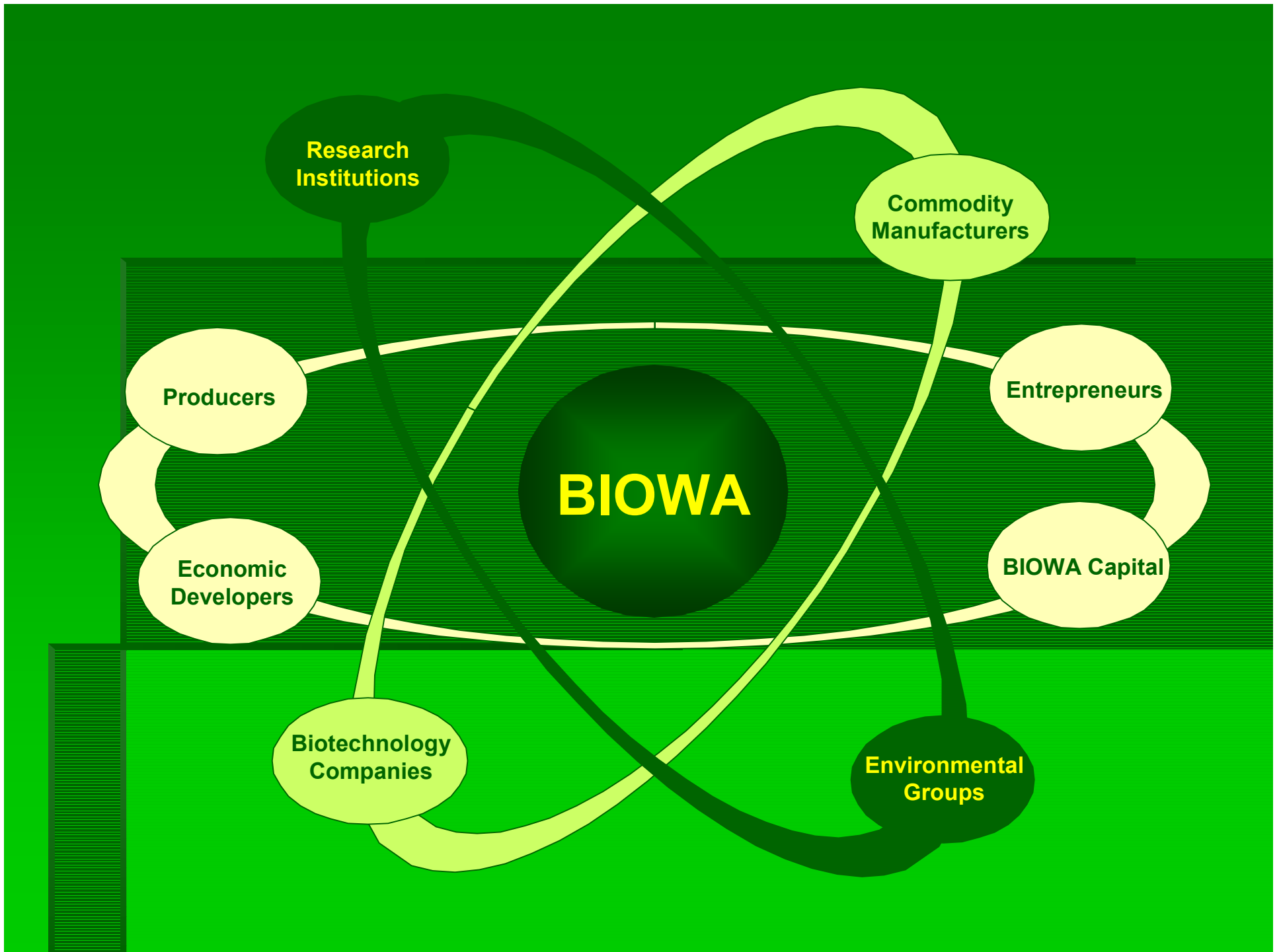
The Importance of Biorefineries

Michael Ott

BIOWA

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Why are biofuels important?

- We are consuming more fuel than we can sustainably produce
- Corn based ethanol is not THE answer, it is AN answer
- Traditional plants are popping up everywhere
- Iowa is the undisputed leader in biofuels

Why do we need biorefineries?

- In 2005 the US produced 4 billion gallons of ethanol
- However, we consumed 140 billion gallons of gasoline
- Making fuel from crops is just the first step to a true bioeconomy

Demand drivers

- Corn based ethanol plants are very profitable
- Government programs
- Farmers invest in plants to step up the value chain
- Now corporations are investing in new plants, mostly outside the state

Rational Exuberance?

- Demand for biofuels has caused prices for commodities to skyrocket
- Many new plants have not secured their feedstock
- President's goals will not be achieved by corn based ethanol alone

Ethanol feedstocks

- Ethanol can be made from sugar from almost any crop
- New production methods enable ethanol to be made from cellulose
- Different regions have different cellulosic resources
- Nearly all are working on biofuels projects
- Iowa MUST focus on corn stover, DDGs and our other native feedstocks

Cellulosic Ethanol Challenges

Harvest,
Transport
and Store
Cellulosic
Feedstock

Convert to
ethanol
and high value
co-products

Transport
ethanol and
co-products
to end users

Cellulose Logistics

- This is the least researched of the major challenges
- Maintaining soil quality while minimizing delivery cost to a processing plant is the major goal
- State support on Iowa feedstocks for basic research and trial programs is essential

Conversion Technologies

- Ethanol can be made from cellulose, but currently it is not cost competitive
- Corn based ethanol was at this stage a few years ago
- New technologies need to be focused on Iowa feedstocks such as corn stover and DDGS to ensure the long term survivability of all of our plants.

Transport Challenges

- The rail system is currently nearly overburdened
- Pipelines have to be the answer, and they should originate from the source of ethanol production
- Federal government is taking the lead and we need to ensure that projects come to Iowa

Conclusion

- Biofuels are the bridge to a true bioeconomy
- Local feedstocks require local solutions
- BIOWA looks to solve future problems, and so should you.

www.biowa.us

Feel free to contact me with any questions at:

biowa.us@gmail.com